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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,218	03/24/2004	Kazuya Ueda	1324.70174	3929

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EXAMINER	
CHEN, WEN YING PATTY	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/808,218	UEDA ET AL.	
	Examiner	Art Unit	
	Wen-Ying P. Chen	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 March 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Species I in the reply filed on Oct. 31, 2005 is acknowledged.

Response to Amendment

Applicant's Amended filed Oct. 31, 2005 has been received and entered. Claims 16-26 drawn to a non-elected Species have been cancelled per the Amendment. Therefore, claims 1-15 are not pending in the current application.

Drawings

Figures 18 and 19 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshida et al. (US 5936693).

With respect to claim 1: Yoshida et al. disclose in Figure 31 a liquid crystal display comprising:

a pair of substrates (elements 11 and 12) provided opposite to each other and having electrodes (elements 22 and 35);

a liquid crystal (element 13) sealed between the pair of substrates; and

a pixel region (element A) including one or a plurality of low effective voltage areas (element S2) in which an effective voltage applied to the liquid crystal is lower than a voltage applied between the electrodes, the low effective voltage areas occupying part of the region in a predetermined area ratio, the pixel region having a threshold voltage that is different between the one or plurality of low effective voltage areas and another area.

As to claim 6: Yoshida et al. further disclose in Column 18 lines 50-53 that the area ratio is in the range from 0.5 to 0.9.

Claims 1, 8 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshida et al. (US 5936693).

With respect to claim 1: Yoshida et al. disclose in Figure 29 a liquid crystal display comprising:

a pair of substrates (elements 11 and 12) provided opposite to each other and having electrodes (elements 22 and 35);

a liquid crystal (element 13) sealed between the pair of substrates; and

a pixel region (element A) including one or a plurality of low effective voltage areas (element S2) in which an effective voltage applied to the liquid crystal is lower than a voltage applied between the electrodes, the low effective voltage areas occupying part of the region in a predetermined area ratio, the pixel region having a threshold voltage that is different between the one or plurality of low effective voltage areas and another area.

As to claim 8: Yoshida et al. further disclose in Column 18 lines 8-12 that the area ratio varies depending on the center transmission wavelength λ of the color filter layer that the pixel region has.

As to claim 13: Yoshida et al. further disclose in Figure 29 that the low effective voltage area (element S2) is provided in the vicinity of an end of the pixel region (region adjacent to element 32 which overlaps the TFT region).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 9-12 and 14-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Takeda et al. (US 2003/0058374).

With respect to claim 1: Takeda et al. disclose in Figure 10 a liquid crystal display comprising:

a pair of substrates (Figure 1 elements 1 and 2) provided opposite to each other and having electrodes (elements 5 and 8);

a liquid crystal (element 3) sealed between the pair of substrates; and

a pixel region including one or a plurality of low effective voltage areas (area corresponding to element 22) in which an effective voltage applied to the liquid crystal is lower than a voltage applied between the electrodes, the low effective voltage areas occupying part of the region in a predetermined area ratio, the pixel region having a threshold voltage that is different between the one or plurality of low effective voltage areas and another area (Paragraph 0113).

As to claim 9: Takeda et al. further disclose in Figure 10 and Paragraph 0113 that the low effective voltage area (area corresponding to element 22) has a dielectric layer (element 22) formed with a predetermined thickness on at least either of the electrodes (element 5).

As to claim 10: Takeda et al. further disclose in Figure 10 that the dielectric layer (element 5) is formed like stripes having a predetermined layer width and gap width (as shown in the figure).

As to claim 11: Takeda et al. further disclose in Figure 10 that the low effective voltage area has an electrode portion with blanks (element 21), formed on at least either of the electrodes (element 5).

As to claim 12: Takeda et al. further disclose in Figure 10 that the electrode portion (element 23) with blanks is formed like stripes having a predetermined electrode width and gap width (as shown in the figure).

As to claim 14: Takeda et al. further disclose in Paragraph 0098 that the liquid crystal is a nematic liquid crystal having negative dielectric constant anisotropy whose initial alignment is vertical to a surface of the substrates.

As to claim 15: Takeda et al. further disclose in Figure 10 that the display further comprising an alignment regulating structure (element 26) for regulating the alignment of the liquid crystal provided on at least either of the substrates, wherein the pixel region has a plurality of alignment regions in which the liquid crystal is aligned in different directions (Paragraphs 0125-0126).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. (US 2003/0058374) in view of Nishida et al. (US 2002/0030780).

With respect to claims 2-4: Takeda et al. disclose all of the limitations set forth in claim 1, but fail to disclose the retardation values of the liquid crystal layer thickness with respect to different wavelength satisfying the equations set forth in claims 2-4.

However, Nishida et al. disclose a liquid crystal display wherein the Δn of the liquid crystal layer regardless the wavelength value is set to be constant (Paragraph 0186, wherein Δn is 0.0067) and that $d_i / \lambda_i = d_j / \lambda_j$ (Paragraph 0072) regardless of having tilt angle and white is displayed when no polarizer is provided (Paragraphs 0072-0082), therefore, the condition set forth in claims 2 and 4 are met. Nishida et al. further disclose that the wavelength closest to 545 nm (Paragraph 0082, wherein the wavelength is 550nm) has a thickness value of 4.5μm, therefore,

$\Delta n^*(4.5\mu m) = 301.5nm$,

which satisfies the condition set forth in claim 3.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display device as taught by Takeda et al. wherein the retardation values of the liquid crystal layer thickness with respect to different wavelength are set as taught by Nishida et al., since Nishida et al. teach that such display characteristic prevents the display from coloring from whichever direction the display apparatus is viewed and that gradation reversal over a larger visibility angle range is also prevented (Paragraphs 0059-0061).

As to claim 5: Takeda et al. disclose all of the limitations set forth in claim 1, but fail to disclose the retardation values of the constant liquid crystal layer thickness with respect to different wavelength is between 250nm and 450nm.

However, Nishida et al. disclose a liquid crystal display wherein the Δn of the liquid crystal layer regardless the wavelength value is set to be constant (Paragraph 0186, wherein Δn is 0.0067) and that the thickness of the liquid crystal layer is set to be 4.5 μm (Paragraph 0186), thus have a $\Delta n(\lambda k)*d = 301.5$nm, which is within 250nm and 450nm.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display device as taught by Takeda et al. wherein the retardation values of the constant liquid crystal layer thickness with respect to different wavelength is between 250nm and 450nm as taught by Nishida et al., since Nishida et al. teach that such display characteristic optimizes the brightness of a white display and the color reproduction property (Paragraph 0186).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. (US 2003/0058374) in view of Ohmuro et al. (US 2001/0040546).

Takeda et al. disclose all of the limitations set forth in claim 1 and further disclose in Paragraph 0100 that the threshold voltage of the low effective voltage area is higher than the threshold voltage of the other area by a predetermined voltage difference, but fail to disclose that the threshold voltage difference is in the range from 0.1V to 2.0V.

However, Ohmuro et al. teach in Paragraph 0071 of a pixel area wherein the threshold voltage of the low effective voltage area is higher than the threshold voltage of the other area by a predetermined voltage difference and that the threshold voltage difference is in the range from 0.1V to 2.0V (wherein the voltage ratio is 0.8 to 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display device as taught by Takeda et al. wherein a threshold voltage difference of the low effective voltage area and another area is in the range from 0.1V to 2.0V as taught by Ohmuro et al., since Ohmuro et al. teach that such voltage difference increases the display response speed (Paragraph 0071).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen-Ying P. Chen whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wen-Ying P Chen
Examiner
Art Unit 2871

WPC
1/06/06

ANDREW SCHECHTER
PRIMARY EXAMINER